

Astronomy software

Your PC can help you find out more about the wonders of space. Mike Bedford gets stars in his eyes as he tests nine astronomy packages and finds the best star-gazing websites

It has been estimated that you can see as many as 2,000 stars on a clear dark night. With a small pair of binoculars you'd easily double that figure, and if you were to look through an astronomical telescope you'd see many more. But even this is just a drop in the ocean. Astronomers believe that there are more stars in the universe than grains of sand on all the beaches on Earth.

Figures such as this add to the mystery of the heavens, but they also make learning about astronomy a daunting task. So where should you start if you want to know more about the night sky? You won't be

surprised that we recommend a good astronomy package for your PC. The good news is that there's no shortage of astronomical software but, as always, that makes the buying decision all the more difficult.

To help you out, we've collected nine products and put them through their paces. Of course there is no 'one size fits all' application, so our round-up of astronomy software goes from products aimed at the absolute beginner right up to sophisticated packages for the serious amateur astronomer. So if you're fascinated by the sky at night and want to know more, we'll help you choose the right software.

Web space Astronomy on the internet

If you enter the word 'Astronomy' as a Google search, the first entry it lists is www.astronomy.com and, as a general-interest astronomical site, there are few better on the web. The site belongs to the publisher of an American magazine called Astronomy, and although parts of the site are for subscribers only, there's a wealth of useful information that's freely available to anyone. You can learn about the constellations, the sun, the planets in the solar system and other objects such as comets and meteors, and there's also a useful glossary so you can check unfamiliar words.

If all this leaves you wanting to see the wonders of the universe yourself, there's no shortage of practical advice. There's guidance on using binoculars, on choosing and using a telescope and on how to photograph the heavens. All the information is well presented with plenty of large photographs and illustrations.

Whereas the Astronomy site has a wealth of background information, if you want up-to-the-minute news stories, www.astronomynow.com and www.spaceflightnow.com take some beating. These sites also belong to magazines – although they are UK-based – so some of the content is restricted to members, but there's still more than enough information here to keep non-subscribers entertained for many an hour. As the names suggest, the first of these sites has news on astronomical events and the second has information relating to space missions, both manned and unmanned. When we looked at the sites, there were stories of a pair of side-by-side supernovas in Galaxy NGC 1316, the discovery that a black hole was rotating 950 times per second and the potential loss of the Mars Global Surveyor after 10 years of service.

No roundup of astronomy websites would be complete without a mention of NASA's home on the web,

www.nasa.gov. Here you'll find links to all NASA's many sites. One of the great things about NASA is that every photograph ever taken by the planetary probes that have been searching the solar system for over 40 years are in the public domain. To access this stunning collection of images, go to <http://photojournal.jpl.nasa.gov>, where you can see Mariner 2, the first ever interplanetary probe, which visited Venus in 1962, through to images from the surface of Saturn's moon Titan that were captured in 2005 by the Huygens probe. The cover DVD with this month's issue of *Computer Shopper* includes a selection of NASA images taken from the Hubble telescope.

The twin Mars rovers, Spirit and Opportunity, are still operational and it is possible to see the latest from their two landing sites at <http://marsrovers.nasa.gov>. In addition to up-to-date news, you'll also find the latest photographs from the surface of the red planet (some in 3D) plus animations. And finally, to read up on the New Horizons probe that's en route to Pluto, the only planet not yet visited by a space probe, go to <http://pluto.jhuapl.edu>.



▲ NASA's website hosts all the photos ever taken by planetary probes over the past 40 years and includes some breathtaking sights

SOFTWARE LABS

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▲ Focus Multimedia makes good use of animation to really bring the planets alive

FOCUS MULTIMEDIA Encyclopædia Britannica Presents Space

★★★★★

£6.99 inc VAT

As the name suggests, this is an encyclopedia, designed to teach you the basics of astronomy. There's no sky navigation feature, and the information is presented using text, a narrative and graphics.

However, unlike some so-called multimedia products that offer little you wouldn't get in a printed book, Encyclopedia Britannica Presents Space makes good use of animation. You might not get a view of the night sky as it appears from Earth, but ask it for information on, say, Jupiter, and it will whisk you off to the vicinity of the giant planet to show you how it would look from space. The view shows a photo-realistic image of Jupiter, the circles representing the orbits of its main moons, and the path of the moons as they orbit the planet. This doesn't teach you a vast amount, but if you double-click on the planet or any of its moons, a window appears offering well-presented information on its size and orbit, composition, the storms raging in its atmosphere, its discovery and even the role of Jupiter in mythology.

The solar system is the most impressive section visually because of the vast number of photographs from NASA's various planetary probes, but the information provided goes far beyond the orbit of the outer planet Pluto. You can learn about galaxies, nebulae, stars, constellations and the universe, continually narrowing your search from the multi-level menus. And if you don't understand anything, more technical terms are highlighted so you can click on them to refer to a dictionary of astronomical terms.

SUMMARY

- ✓ Low price
- ✓ No shortage of information
- ✗ Not suitable as a guide to star gazing

ASTRONOMY SOFTWARE Requires Windows 95/98/Me/2000/XP, Pentium III-class processor, 64MB RAM (128MB for 2000/XP), 130MB disk space, 4MB DirectX 8.0-compatible graphics card
SUPPLIER www.amazon.co.uk
DETAILS www.focusmm.co.uk



▲ Teaching You Astronomy Skills is a cut-down version of RedShift

FOCUS MULTIMEDIA Teaching You Astronomy Skills

★★★★★

£8.99 inc VAT



It might say 'Teaching You Astronomy Skills' on the box, but having installed the software it appears onscreen as RedShift Planetarium. And the similarity between this package and RedShift 6 is more than in its name. The two packages clearly have the same heritage and, rather than the overtly educational package the Teaching You name suggests, this is actually a cut-down version of RedShift. Given that it's less than a tenth of the price of the latest version of RedShift, this is excellent value for money if you don't need all the facilities of the full version.

The sky navigation facility has far fewer stars in its database than RedShift 6 and no advanced facilities such as telescope control, but it's great for beginners. Like RedShift it also has a large library of reference material and, while not quite as up to date, provides a wealth of useful information.

The reference material contains a video gallery and a photographic gallery, and in both cases the range and quality of the material is impressive. There are also lectures on various astronomical topics, which include printed text, a narrative and illustrations. A particularly useful feature is the collection of guided tours. The tour of the Galileo mission to Mars, for example, might look like a movie as it shows you how the probe was sling-shot off various planets to give it the necessary velocity to get to its target. But like all the guided tours, it actually drives the built-in astronomical simulator. This means that at the end of the tour – or at any point along the way – you can take the controls yourself to alter course and so modify the tour.

SUMMARY

- ✓ Excellent value for money
- ✓ Plenty of multimedia material
- ✗ Sky navigator is limited

ASTRONOMY SOFTWARE Requires Windows 98/Me/2000/XP, 300MHz processor, 64MB RAM, 1.1GB disk space, 800x600 graphics
SUPPLIER www.amazon.co.uk
DETAILS www.focusmm.co.uk



▲ Learn about all the manned missions into space, but not in too much detail

GREY OLLTWT'S SOFTWARE Manned Spaceflight

★★

£9.95 inc VAT for website membership

If you're particularly interested in manned spaceflight, this package sounds appealing in view of its more specialised aim.

Yuri Gagarin became the first man in space on 12th April 1961; the last dated reference in Manned Spaceflight is to the re-entry tragedy of the Shuttle Columbia on 16th January 2003. All in all, therefore, this package provides an introduction to over 40 years of manned space exploration. Between the Russian Vostok and the American Space Shuttle, mankind has been into Earth orbit and beyond onboard Mercury, Gemini, Apollo and Soyuz spacecraft and flown in various space stations, all of which are covered here using text, photographs, sound recordings and video clips.

The package is aimed at younger users preparing school projects, and images and text can be copied and pasted into a document. The method of navigation is not consistent but we're sure this was deliberate, to keep young minds engaged rather than because of any lack of design skills. The price is also attractive for younger users. You get access to 40 programs for £9.95, which is just 25p per program.

Whereas all this might be ideal for doing homework, it does mean that the content is rather superficial for those wanting to delve more deeply. All space missions up to 2003 get a mention but, in many cases, it's just a one-line entry. For Shuttle flights this might be all most people would want, but we can't help but feel that the Apollo missions to the moon – surely the pinnacle of manned spaceflight – should each have been covered in considerably more detail than they are.

SUMMARY

- ✓ Very cheap
- ✗ Superficial in some areas
- ✗ Displays in a small window

ASTRONOMY SOFTWARE Requires Windows 95/98/NT/2000/Me/XP, 166MHz processor, 16MB RAM, 50MB disk space
SUPPLIER Grey Olltwit's Software 020 8180 5217
DETAILS www.greyolltwit.com



▲ For a basic introduction to astronomy, try GSP's Encyclopedia of Space and the Universe

GSP Eyewitness Encyclopedia of Space and the Universe

★★
£9.99 inc VAT

This Eyewitness guide operates at a resolution of just 640x480, which means it won't display at full-screen size on most modern PCs, which have a minimum resolution of 1,024x768.

Like some of the big-name packages reviewed here, it provides a view of the night sky at any place on earth at any time and date. Unlike the more serious packages, it doesn't actually say how many astronomical objects are in its database, but it's fewer than the other packages in this lab. Even so, there's probably enough here to help you interpret the night sky if you're viewing with the naked eye or a pair of binoculars as opposed to a telescope.

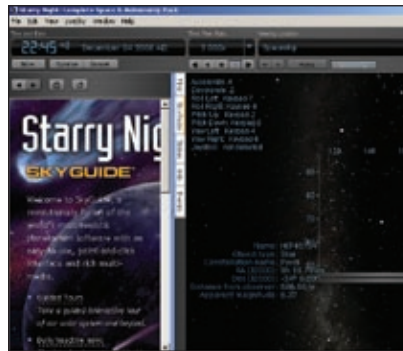
This product is primarily an encyclopedia rather than a sky navigation package. There's no shortage of information, albeit at a fairly non-technical level, and content includes both astronomy and astronautics. In the astronomy category there's information on the solar system and each of the planets, distant objects in the universe and cosmology. In the astronautics category you can learn about the space race and the various probes that have been launched into space. The content is mostly textual with the option of listening to a narrator, plus a smattering of photographs and the occasional video clip.

This package only has information published originally in the mid-1990s and whereas basic astronomy hasn't changed much in the intervening decade, the information on the planetary probes is missing more recent information such as the Cassini-Huygens missions to Saturn and its moon Titan.

SUMMARY

- ✓ Provides a low-cost introduction to astronomy
- ✗ Limited to 640x480 resolution
- ✗ Content is dated in some areas

ASTRONOMY SOFTWARE Requires Windows 95/98/Me/XP, 486-class processor, 8MB RAM, 10MB disk space
SUPPLIER Global Software Publishing 01480 496666
DETAILS www.gspsoftware.co.uk



▲ Starry Night includes a Sky Theater DVD and ways to make learning about space fun

AVENQUEST Starry Night Complete Space & Astronomy Pack 6

★★★★
£20 inc VAT

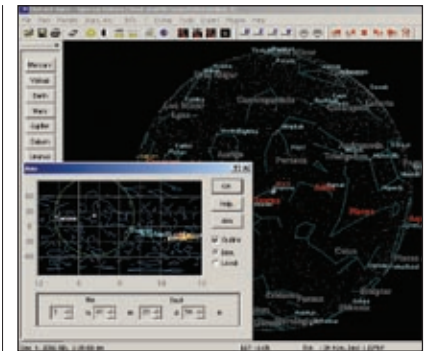
The relationship between Starry Night Complete Space & Astronomy Pack and Starry Night Enthusiast 6 is similar to that between Teaching You Astronomy Skills and RedShift 6 Premium. The look and feel is similar to that of Starry Night Enthusiast but the facilities are much reduced. There are just a million stars in the database, but you can see only a couple of thousand stars on a dark night with the naked eye so this is probably more than enough for the beginner. It costs significantly less, but it still includes the Sky Theater DVD that plays on your PC or a domestic DVD player. There's also the Starry Night Companion, although it comes only as a PDF, not a printed book.

Previous versions of Complete Space & Astronomy Pack included a separate bundled educational package called Deep Space Explorer that wasn't part of Starry Night Enthusiast. That's now gone, which is a shame, but in keeping with its educational aims, all versions of Starry Night (Enthusiast included) provide an element of making learning fun. In particular there's a feature called spacecraft mode. Here you take the controls of a spaceship to find out what it would be like to travel through the Solar System or intergalactic space at breakneck speed. This isn't intended to be an accurate simulation of a real spacecraft – there is, after all, no such thing as an intergalactic starship – but it does provide a light-hearted way of learning about the universe. In other ways spacecraft mode is the same as the ordinary sky view mode in that you can learn about any object you encounter just by hovering over it with the mouse.

SUMMARY

- ✓ Includes DVD movie
- ✓ Spacecraft mode makes learning fun
- ✗ More expensive than Teaching You Astronomy

ASTRONOMY SOFTWARE Requires Windows XP, 500MHz processor, 128MB RAM, 850MB disk space, 32MB OpenGL-capable graphics card, 1,024x768 graphics
SUPPLIER Avenquest 01962 835000
DETAILS www.avenquest.co.uk



▲ Distant Suns 6 provides a good basic introduction to star-gazing activities

VENDOR NATION Distant Suns 6

★★★★★
US\$50 (around £25)

This package's specifications are very similar to those of RedShift and SkyMap Pro, although the look and feel is not identical. Primarily, Distant Suns is an astronomical simulator to help you in your star gazing. It has a massive 16 million stars in its database and lets you view the sky as it would look from anywhere on the Earth's surface at any time.

You can filter the results in lots of ways so as not to get overwhelmed with the amount of information presented onscreen. For example, you can choose to look at planets only, at stars only or at both of them. When you're looking at stars, you can select the magnitude (brightness) threshold below which they will not be displayed.

Telescope control is not provided as standard. There is provision for third-party plug-ins, although we were unable to find any telescope control plug-ins. The software's publisher claims that it's easy to write a plug-in, and a software development kit (SDK) is provided for this purpose.

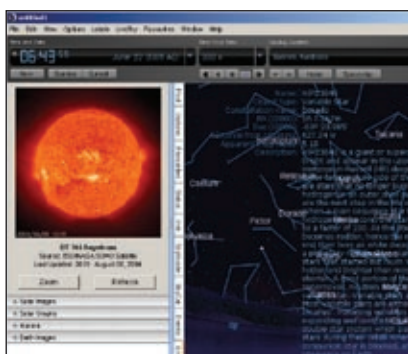
Distant Suns 6 comes with a good selection of photographs and movies, and there's also a wide range of textual and tabular information. Visually it might not be as polished as some of the other packages, but if you want to see a list of astronomical highlights for the month, tables of forthcoming eclipses or meteor showers or details of the planets, it's all here. There's also an astronomical story or tutorial for every night of the year. At the time of writing, we were told about the Geminid meteor shower that was about to peak.

This product might not have the same 'wow factor' as some of the other packages reviewed here, but it certainly provides the basics. When you bear in mind that it costs far less than most of the competition, it's a good choice.

SUMMARY

- ✓ Good value for money
- ✓ 16 million stars
- ✗ Not quite as polished as the big-name packages

ASTRONOMY SOFTWARE Requires Windows 98/Me/2000/XP, 32MB RAM, 20MB disk space
SUPPLIER www.vendornation.com
DETAILS www.distantsons.com



▲ Starry Night should keep casual star-gazers content for a few hours at least

AVENQUEST Starry Night Enthusiast 6

★★★★★

£35 inc VAT

Avenquest's Starry Night range comprises a handful of similar-looking astronomy packages. We chose to look at the Enthusiast edition, which offers a reasonable compromise between features and price. In many ways this package is similar to RedShift 6 Premium although, as you might expect for the lower price, it does have a lower specification.

In particular, if we exclude the entry-level sub-£10 packages reviewed here, Starry Night Enthusiast 6 has the fewest stars in its database at just 2½ million. However, that is probably more than enough to keep casual users busy for a good few hours. The other drawback for serious astronomers is that there's no telescope control.

The presentation is polished. For example, if you hover over an object on the map, a full description of the star, galaxy or comet appears automatically. Starry Night also comes with a selection of guided tours, much like those supplied with RedShift 6 Enthusiast, and there's no shortage of good-quality photographs.

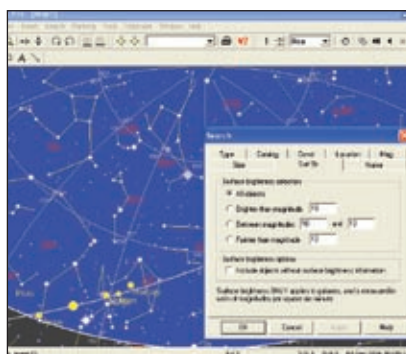
The package includes a couple of bundled extras: Starry Night Companion and the Sky Theater. The former is an introductory textbook on astronomy that is supplied both as a printed book and as a PDF so you can view it onscreen. It includes both basic factual information, such as the chapter on the solar system, as well as more theoretical treatment, such as on Kepler's laws of gravity. The Sky Theater is a DVD that you can play either on your PC or a domestic DVD player.

With a total playing time of over an hour, it includes seven movies on aspects of the Solar System, and has impressive presentation and narratives.

SUMMARY

- ✓ Includes textbook and DVD movie
- ✓ Excellent interface
- ✗ Only 2½ million stars

ASTRONOMY SOFTWARE Requires Windows XP, 500MHz processor, 128MB RAM, 500MB disk space, 1,024x768 graphics
SUPPLIER Avenquest 01962 835000
DETAILS www.avenquest.co.uk



▲ Telescope control comes as standard with Sky Map Pro 11

MARINESOFT SkyMap Pro 11

★★★★★

£83 inc VAT

SkyMap Pro might be a sky navigation package, but according to the publisher it's in a somewhat different category from the big names such as RedShift and Starry Night. It's a down-to-earth package designed to support the needs of the serious amateur, or even professional astronomers, in their star gazing. As such, the photo-realistic sky images found in some of the other packages are absent and, although there is some multimedia educational material, it isn't as important a part of the product as it is with other programs. Its database includes 15 million stars.

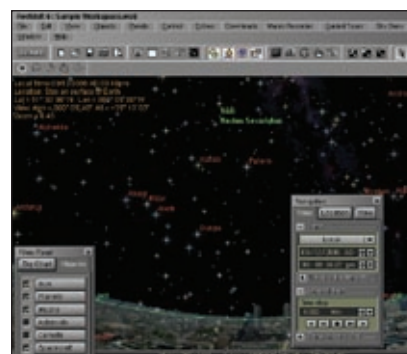
The image of the sky doesn't altogether look as it would if you looked out of the window, but all the information is there and the presentation is more appropriate to assist you in using a telescope. Telescope control comes as standard and you can also define your telescope and eyepiece so that you'll see onscreen only the portion of the sky that would be visible through your telescope. There are tools to help you plan your observations and these allow you to draw up a target list. Alternatively, you can import target lists from the SkyMap website (www.skymap.com). There are also tools for recording your observations with a full search facility for perusing your log files at a later date.

Although SkyMap Pro is not the multimedia extravaganza that some of the competing packages aspire to be, it does have 15,000 photographs, links to photos on the web and the option to add your own photographs. In common with many packages, however, many of the supplied photographs are not presented at a very high resolution, which means that you won't necessarily see the level of detail that does these fascinating images justice.

SUMMARY

- ✓ Good facilities for the practical photographer
- ✓ Telescope control
- ✗ Limited multimedia content

ASTRONOMY SOFTWARE Requires Windows 98/Me/NT 4/2000/XP, 233MHz processor, 64MB RAM, 235MB disk space for standard installation, 800x600 graphics
SUPPLIER www.marinesoft.co.uk
DETAILS www.skymap.com



▲ There are an enormous 16 million stars in RedShift 6's database

FOCUS MULTIMEDIA RedShift 6 Premium

★★★★

£100 inc VAT

In common with many of the products reviewed here, RedShift is first and foremost a sky navigation package. Tell it where you live and it will paint a picture of what you see if you look out your window.

The map of the sky on your PC screen labels planets, stars, comets, constellations and a whole lot more. You can use it for armchair astronomy or, if you want to see the heavens for real, put your notebook next to your telescope or print out a star chart to help you identify what you're seeing. And if you'd like to see what the sky would have looked like to the magi en route to Bethlehem, for example, just tell RedShift that the date is 0AD and your location is Israel and you too can try to identify that famous star.

RedShift also lets you view the heavens from a vantage point far removed from the Earth's surface. This won't help you in observing the night sky, but it will assist you in understanding more about the planets. Position yourself in orbit around Saturn, for example, and you can see the planet as it was seen by the Cassini probe.

One of the main selling points for serious enthusiasts is the number of stars in the package's database, and for RedShift 6 this is an impressive 16 million. None of the other programs reviewed here offers more. If you own a telescope that features a PC interface, RedShift can control it; simply call up the star from the database and RedShift will steer your telescope in the right direction. The package also has the same large library of video clips and photographs as Teaching You Astronomy Skills (see page 132), which is also from the RedShift stable. **ES**

SUMMARY

- ✓ A massive 16 million stars in the database
- ✓ Includes telescope control
- ✗ The most expensive package here

ASTRONOMY SOFTWARE Requires Windows Me/2000/XP/x64, 400MHz processor, 256MB RAM, 1.2GB disk space, 1,024x768 graphics
SUPPLIER Focus Multimedia 01889 570156
DETAILS www.focusmm.co.uk